

Amendments to the Specification:

Page 3:

(1) Amend the paragraph beginning with line 24 and ending with line 25, as shown in the following marked up and clean copies:

Marked Up Copy

--Preferably, the shoulders of the buttress threads are at an angle of approximately 10° (to the normal to the horizontal axes of the studbolt and puller bar), i.e., the threaded end of the puller bar has a 10° taper. --

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--Preferably, the shoulders of the buttress threads are at an angle of approximately 10° (to the normal to the horizontal axes of the studbolt and puller bar), i.e., the threaded end of the puller bar has a 10° taper. --

(2) Amend the paragraph beginning with line 30 and ending with line 31, as shown in the following marked up and clean copies:

Marked Up Copy

-- Preferably, the pitch of the external thread on the puller bar is 3.005mm ~~3.5mm~~; and the pitch of the vertical thread in the studbolt is 3.00mm ~~3.0mm~~. --

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-- Preferably, the pitch of the external thread on the puller bar is 3.005mm; and the pitch of the vertical thread in the studbolt is 3.00mm. --

Page 4:

(1) Amend the paragraph beginning with line 11 and ending with line 12, as shown in the following marked up and clean copies:

Marked Up Copy

-- Preferably, the pitch of the external thread on the puller bar is 3.005mm ~~3.0mm~~; and the pitch of the vertical thread in the studbolt is 3.00mm ~~3.0mm~~. --

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-- Preferably, the pitch of the external thread on the puller bar is 3.005mm; and the pitch of the vertical thread in the studbolt is 3.00mm. --

Page 8:

Amend line 15 in the first full paragraph appearing on page 8 by correcting the spelling of "buddy" as shown on the following marked up and clean copies:

Marked Up Copy

-- In FIGS. 2, 3 and 4, there is illustrated a development in accordance with the present invention. The studbolt 19 may have an external thread 19a to which can be applied a nut structure 20 incorporating the cone nut 21 and an hydraulic tensioning assembly 25 in accordance with the invention. The hydraulic assembly 25 may involve multiple load cells, eg.,
5 three in this example numbered as 26, 27, 28, each with a respective piston and cylinder such as 29 and 30, as shown for load cell 26, and each with a charge port 31 in the case of load cell 26. (The charge ports 31 are connected to a manifold 32.) The load cells 26, 27, 28 work upwardly against a bar nut 34 on a tension transmitting member 33, hereinafter referred to as a "puller

bar”, which extends downwardly, centrally of the load cells 26-28 to (optionally) a threaded end
36 which may screw-threadably engage a complementary bore in studbolt 19. The puller bar 33
may have an engagement face or shoulder 35, acting with or working against an intermediate
load transmitting means, hereinafter called a “puller buddy” 37, screw-threadably or otherwise
engaged to an external thread (in this example) on the studbolt 19. Together, the puller bar 33
and puller buddy ~~body~~ 37 co-operate to tension the studbolt 19. The hydraulic assembly 25
extends downwardly, past the cone nut 21, preferably via a bridge 38, which may sit atop the
shell 23, acting or working thereby against washer 24 in the process of tensioning the studbolt
19. Elongation resulting from tensioning of the studbolt 19 by action of the tensioning assembly
25 on the studbolt 19 can be taken up by rotation of the cone nut 21. --

Clean Copy

-- In FIGS. 2, 3 and 4, there is illustrated a development in accordance with
the present invention. The studbolt 19 may have an external thread 19a to which can be
applied a nut structure 20 incorporating the cone nut 21 and an hydraulic tensioning assembly
25 in accordance with the invention. The hydraulic assembly 25 may involve multiple load
cells, eg., three in this example numbered as 26, 27, 28, each with a respective piston and
cylinder such as 29 and 30, as shown for load cell 26, and each with a charge port 31 in the
case of load cell 26. (The charge ports 31 are connected to a manifold 32.) The load cells 26,
27, 28 work upwardly against a bar nut 34 on a tension transmitting member 33, hereinafter
referred to as a “puller bar”, which extends downwardly, centrally of the load cells 26-28 to
(optionally) a threaded end 36 which may screw-threadably engage a complementary bore in
studbolt 19. The puller bar 33 may have an engagement face or shoulder 35, acting with or
working against an intermediate load transmitting means, hereinafter called a “puller buddy”
37, screw-threadably or otherwise engaged to an external thread (in this example) on the
studbolt 19. Together, the puller bar 33 and puller buddy ~~body~~ 37 co-operate to tension the
studbolt 19. The hydraulic assembly 25 extends downwardly, past the cone nut 21, preferably
via a bridge 38, which may sit atop the shell 23, acting or working thereby against washer 24 in

the process of tensioning the studbolt 19. Elongation resulting from tensioning of the studbolt 19 by action of the tensioning assembly 25 on the studbolt 19 can be taken up by rotation of the cone nut 21. --

Page 10:

(1) Amend the last line of the first full paragraph appearing on page 10, by inserting “are removed” after “(see below)”, as shown in the following marked up and clean copies:

Marked Up Copy

-- FIG. 9 illustrates a friction washer in accordance with the invention. The washer 51 is in two parts or halves 52, 53, mated across sloped surfaces at line 54. The two parts 52, 53 held in position by bolts 55 in holes 56 and threads (not shown) in part 52. When a nut is to be released, the bolts 55 may be removed and a tap with a hammer can cause slip over plane 54 to release tension. The friction washer 51 is loaded by the compressive force applied to the joint and two halves 52, 53 are held together by friction. The degree of slope is chosen to enable slip when the washer 51 is given a jolt after the retaining bolts or the wedges (see below) are removed. --

Clean Copy

-- FIG. 9 illustrates a friction washer in accordance with the invention. The washer 51 is in two parts or halves 52, 53, mated across sloped surfaces at line 54. The two parts 52, 53 held in position by bolts 55 in holes 56 and threads (not shown) in part 52. When a nut is to be released, the bolts 55 may be removed and a tap with a hammer can cause slip over plane 54 to release tension. The friction washer 51 is loaded by the compressive force applied to the joint and two halves 52, 53 are held together by friction. The degree of slope is chosen to enable slip

when the washer 51 is given a jolt after the retaining bolts or the wedges (see below) are removed. --

(2) Amend the third line of the paragraph beginning with line 17 and ending with line 24 as shown on the following marked up and clean copies:

Marked Up Copy

-- In FIGS. 10 to 12 are shown variations of the slip washer of FIG. 9. In FIGS. 10 and 11, the two parts are held by keys 57, 58 or small wedges which may be removed to allow slip of the two sections. In FIG. 12, the slip plane is stepped at 59 to allow easy assembly with bolts fed into holes such as 60 + extended through the shoulder. For those with lingering doubts about
5 removal of bolts under high tensile load, then these offer great reassurance. In practice, there may be so much removal time saved that they could become valuable in applications not utilising the other features of the presently set out system.--

Clean Copy

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5 removal of bolts under high tensile load, then these offer great reassurance. In practice, there may be so much removal time saved that they could become valuable in applications not utilising the other features of the presently set out system.--

Page 11:

Amend the fourth line of the paragraph beginning with line 8 and ending with line 13 as shown in the following marked up and clean copies:

Marked Up Copy

-- In FIGS. 19 to 24 are illustrated variations of the above described washers, wherein a lock ring 79, 85 holds segment pieces such as 80 which together act as a washer. Removal of the locking ring 79 releases them to release the load. The segment piece 81 of FIG. 20 may have a conical face 82. The piece 83 of FIG. 24 is formed with a flat face 84 which come together with
5 locking ring 85 to form the assembly of FIG. 22.--

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-- In FIGS. 19 to 24 are illustrated variations of the above described washers, wherein a lock ring 79, 85 holds segment pieces such as 80 which together act as a washer. Removal of the locking ring 79 releases them to release the load. The segment piece 81 of FIG. 20 may have a conical face 82. The piece 83 of FIG. 24 is formed with a flat face 84 which come together with locking ring 85 to form the assembly of FIG. 22.--

Page 12:

Amend the second line of the paragraph beginning at line 16 and ending at line 20 as shown in the following marked up and clean copies:

Marked Up Copy

-- The inventor has designed a specific threadform for this application, as shown in FIG. 30. It has a very low face angle (eg., 2.5° 25°) and exaggerated root radii (eg., 0.2-0.25mm) to prevent stress concentrations common with generic forms. The more even stress concentration patterns in the components are illustrated by the stress concentration pattern shown in FIG. 31. --

Application No. 10/699,948

Amendment dated June 13, 2005

Responds to Office Action of December 13, 2004

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